

# Bone & Joint Open



## Supplementary Material

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**Table i.** International Classification of Diseases-10 codes used to identify reason for readmission within one year from surgery for per- and subtrochanteric fractures. Frequencies of implant-associated complications are given in detail.

ICD-10	Specification	Frequency, n
<b>Internal Medicine</b>		
<i>A00 – B99</i>	Certain infectious and parasitic diseases	166
<i>C00 – C97</i>	Neoplasms	268
<i>D50 – D89</i>	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	51
<i>E00 – E99</i>	Endocrine, nutritional and metabolic diseases	135
<i>I00 – I99</i>	Diseases of the circulatory system	750
<i>J00 – J99</i>	Diseases of the respiratory system	333
<i>K00 – K93</i>	Diseases of the digestive system	361
<i>R00 – R99</i>	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	209
<b>General Medicine</b>		

<i>F00 – F99</i>	Mental and behavioural disorders	157
<i>G00 – G99</i>	Diseases of the nervous system	150
<i>H00 – H59</i>	Diseases of the eye and adnexa	203
<i>H60 – H95</i>	Diseases of the ear and mastoid process	9
<i>L00 – L99</i>	Diseases of the skin and subcutaneous tissue	39
<i>M00 – M99</i>	Diseases of the musculoskeletal system and connective tissue	332
<i>N00 – N99</i>	Diseases of the genitourinary system	337
<i>Q00 – Q99</i>	Congenital malformations, deformations and chromosomal abnormalities	3
<i>U00 – U49</i>	Provisional assignment of new diseases of uncertain aetiology or emergency use	186
<i>Z00 – Z99</i>	Factors influencing health status and contact with health services	23
<b>Surgery/Injury</b>		
<i>S00 – T98*</i>	Injury, poisoning and certain other consequences of external causes	1,612
<i>T84.0</i>	Mechanical complication of internal joint prosthesis	(37)
<i>T84.1</i>	Mechanical complication of internal fixation device of bones of limb	(62)
<i>T84.2</i>	Mechanical complication of internal fixation device of other bones	(5)
<i>T84.3</i>	Mechanical complication of other bone devices, implants and grafts	(2)
<i>T84.4</i>	Mechanical complication of other internal orthopaedic devices, implants and grafts	(4)
<i>T84.5</i>	Infection and inflammatory reaction due to internal joint prosthesis	(45)
<i>T84.6</i>	Infection and inflammatory reaction due to internal fixation device	(13)
<i>T84.7</i>	Infection and inflammatory reaction due to other internal orthopaedic prosthetic devices, implants and grafts	(8)
<i>T84.8</i>	Other complications of internal orthopaedic prosthetic devices, implants and grafts	(8)
<i>T84.9</i>	Unspecified complication of internal orthopaedic prosthetic device, implant and graft	(8)
<i>T85</i>	Complications of other internal prosthetic devices, implants and grafts	(2)
<i>T86</i>	Failure and rejection of transplanted organs and tissues	(0)
<i>T87</i>	Complications peculiar to reattachment and amputation	(0)
<i>T88</i>	Other complications of surgical and medical care, not elsewhere classified	(5)
<i>T90</i>	Sequelae of injuries of head	(2)

<i>T91</i>	Sequelae of injuries of neck and trunk	(3)
<i>T92</i>	Sequelae of injuries of upper limb	(14)
<i>T93</i>	Sequelae of injuries of lower limb	(257)
<i>T94</i>	Sequelae of injuries involving multiple and unspecified body regions	(1)
<i>T95</i>	Sequelae of burns, corrosions and frostbite	(0)
<i>T96</i>	Sequelae of poisoning by drugs, medicaments and biological substances	(0)
<i>T97</i>	Sequelae of toxic effects of substances chiefly nonmedicinal as to source	(0)
<i>T98</i>	Sequelae of other and unspecified effects of external causes	(6)

\*Showing selected ICD-10 subcategories.

**Table ii.** Subgroup analysis excluding patients aged 55 years and below, investigating factors associated with readmission for any complication at 30 days and one year in 6,097 patients with osteosynthesis and 4,772 patients with endoprotheses.

30 days	Osteosynthesis (n = 6,097)			Endoprosthesis (n = 4,772)		
	OR	95% CI	p-value	OR	95% CI	p-value
<b>Age group, yrs; 55 to 64 ref.</b>	(ref.)			(ref.)		
65 to 74	1.72	1.19 to 2.51	0.004	1.10	0.74 to 1.63	0.648
≥ 75	2.31	1.67 to 3.21	< 0.001	1.41	0.99 to 2.00	0.055
<b>Male sex</b>	1.36	1.17 to 1.59	< 0.001	1.38	1.17 to 1.61	< 0.001
<b>Hospital category (surgeries per year),* A (0 to 250) ref.</b>	(ref.)			(ref.)		
B (251 to 500)	0.95	0.71 to 1.28	0.746	0.81	0.60 to 1.10	0.182
C (501 to 750)	0.85	0.64 to 1.14	0.280	0.70	0.52 to 0.95	0.023
D (751 to 1,000)	0.66	0.48 to 0.90	0.009	0.64	0.46 to 0.88	0.006
E (> 1,001)	1.03	0.77 to 1.38	0.864	1.12	0.82 to 1.53	0.468
<b>LOS (days)</b>	1.01	0.99 to 1.01	0.062	1.00	0.99 to 1.01	0.736
<b>1 year</b>						
<b>Age group, yrs; 55 to 64 ref.</b>	(ref.)			(ref.)		
65 to 74	1.61	1.29 to 2.01	< 0.001	1.06	0.80 to 1.39	0.690
≥ 75	1.49	1.23 to 1.80	< 0.001	1.29	1.01 to 1.65	0.040
<b>Male sex</b>	1.23	1.10 to 1.38	< 0.001	1.37	1.22 to 1.55	< 0.001
<b>Hospital category (surgeries per year),* A (0 to 250) ref.</b>	(ref.)			(ref.)		
B (251 to 500)	1.01	0.81 to 1.25	0.992	0.83	0.65 to 1.06	0.130
C (501 to 750)	0.88	0.72 to 1.09	0.253	0.74	0.58 to 0.94	0.013
D (751 to 1,000)	0.77	0.62 to 0.96	0.023	0.79	0.62 to 1.02	0.069
E (> 1,001)	1.00	0.81 to 1.25	0.970	1.09	0.85 to 1.40	0.494
<b>LOS, days</b>	1.01	1.00 to 1.02	< 0.001	1.01	1.00 to 1.01	0.006

\*Endoprosthetic arthroplasties and osteosyntheses.

CI, confidence interval; LOS, length of in-hospital stay; OR, odds ratio.

**Table iii.** Factors influencing readmission for general medicine-, internal medicine-, and surgery/injury-associated complications within 30 days and one year in 6,435 patients with osteosynthesis.

30 days	General medicine (n = 199)			Internal medicine (n = 371)			Surgery/injury (n = 351)		
	OR	95% CI	p- value	OR	95% CI	p- value	OR	95% CI	p- value
<b>Age group, yrs; &lt; 55 ref.</b>	(ref.)			(ref.)			(ref.)		
55 to 64	7.09	0.91 to 55.29	0.061	1.15	0.45 to 2.60	0.773	1.80	0.75 to 4.35	0.189
65 to 74	13.27	1.8 to 97.70	0.011	2.06	0.90 to 4.72	0.086	2.59	1.15 to 5.85	0.022
≥ 75	11.12	1.53 to 80.23	0.017	3.82	1.77 to 8.22	0.001	3.23	1.50 to 7.00	0.003
<b>Male sex</b>	1.09	0.80 to 1.48	0.593	1.69	1.35 to 2.10	< 0.001	1.11	0.88 to 1.41	0.371
<b>Hospital category (surgeries per year),* A (0 to 250) ref.</b>	(ref.)			(ref.)			(ref.)		
B (251 to 500)	0.87	0.46 to 1.64	0.660	0.93	0.61 to 1.42	0.742	1.04	0.68 to 1.59	0.867
C (501 to 750)	1.21	0.66 to 2.21	0.545	0.87	0.57 to 1.32	0.506	0.71	0.46 to 1.10	0.123
D (751 to 1,000)	0.75	0.38 to 1.47	0.401	0.82	0.53 to 1.28	0.388	0.52	0.32 to 0.84	0.008
E (> 1,001)	1.52	0.83 to 2.81	0.178	0.70	0.45 to 1.08	0.109	1.11	0.73 to 1.71	0.621
LOS (days)	1.01	0.99 to 1.02	0.290	1.01	1.00 to 1.02	0.003	0.99	0.98 to 1.01	0.449
1 year	General medicine (n = 792)			Internal medicine (n = 1,277)			Surgery/injury (n = 932)		
<b>Age group, yrs; &lt; 55 ref.</b>	(ref.)			(ref.)			(ref.)		
55 to 64	1.37	0.87 to 2.15	0.178	1.50	0.96 to 2.36	0.077	0.94	0.63 to 1.41	0.774
65 to 74	1.96	1.30 to 2.97	0.001	2.60	1.73 to 3.91	< 0.001	0.91	0.63 to 1.32	0.625
≥ 75	1.24	0.84 to 1.84	0.273	2.89	1.97 to 4.24	< 0.001	1.06	0.76 to 1.47	0.740
<b>Male sex</b>	0.99	0.84 to 1.17	0.903	1.45	1.27 to 1.65	< 0.001	0.86	0.74 to 1.01	0.060
<b>Hospital category (surgeries per year),* A (0 to 250) ref.</b>	(ref.)			(ref.)			(ref.)		

B (251 to 500)	0.83	0.61 to 1.13	0.241	1.35	1.02 to 1.78	0.036	0.87	0.66 to 1.14	0.316
C (501 to 750)	0.95	0.70 to 1.28	0.729	1.19	0.91 to 1.57	0.206	0.68	0.52 to 0.90	0.006
D (751 to 1,000)	0.79	0.57 to 1.09	0.150	1.23	0.93 to 1.64	0.148	0.60	0.45 to 0.80	0.001
E (> 1,001)	0.96	0.70 to 1.31	0.815	1.30	0.98 to 1.72	0.067	0.81	0.61 to 1.07	0.139
LOS, days	1.01	0.99 to 1.01	0.169	1.01	1.00 to 1.02	< 0.001	0.99	0.99 to 1.01	0.576

\*Endoprosthetic arthroplasties and osteosyntheses.

CI, confidence interval; LOS, length of in-hospital stay; OR, odds ratio.

**Table iv.** Factors influencing readmission for general medicine-, internal medicine-, and surgery/injury-associated complications within 30 days and one year in 4,835 patients with endoprotheses.

30 days	General medicine (n = 157)			Internal medicine (n = 320)			Surgery/injury (n = 322)		
	OR	95% CI	p- value	OR	95% CI	p- value	OR	95% CI	p- value
<b>Age group, yrs; &lt; 55 ref.</b>	(ref.)			(ref.)			(ref.)		
55 to 64	2.11	0.26 to 16.98	0.484	1.51	0.33 to 6.88	0.594	0.74	0.26 to 2.08	0.565
65 to 74	1.48	0.19 to 11.38	0.704	1.95	0.46 to 8.27	0.363	0.85	0.33 to 2.21	0.737
≥ 75	2.53	0.35 to 18.44	0.361	2.57	0.62 to 10.61	0.191	0.89	0.35 to 2.24	0.799
<b>Male sex</b>	1.26	0.90 to 1.74	0.176	1.58	1.26 to 2.00	< 0.001	1.14	0.90 to 2.24	0.286
<b>Hospital category (surgeries per year),* A (0 to 250) ref.</b>	(ref.)			(ref.)			(ref.)		
B (251 to 500)	1.37	0.60 to 3.14	0.453	0.78	0.50 to 1.21	0.268	0.75	0.49 to 1.14	0.179
C (501 to 750)	1.50	0.67 to 3.37	0.326	0.75	0.48 to 1.16	0.190	0.56	0.37 to 0.87	0.009
D (751 to 1,000)	1.28	0.55 to 2.99	0.566	0.59	0.37 to 0.95	0.031	0.62	0.40 to 0.98	0.039
E (> 1,001)	2.92	1.31 to 6.50	0.009	0.97	0.62 to 1.53	0.901	0.84	0.54 to 1.30	0.430
<b>LOS (days)</b>	1.01	0.99 to 1.02	0.457	1.01	0.99 to 1.02	0.140	0.99	0.98 to 1.02	0.118
1 year	General medicine (n = 647)			Internal medicine (n = 996)			Surgery/injury (n = 680)		
<b>Age group, yrs; &lt; 55 ref.</b>	(ref.)			(ref.)			(ref.)		
55 to 64	1.05	0.48 to 2.29	0.901	1.44	0.64 to 3.25	0.374	1.14	0.48 to 2.69	0.773
65 to 74	0.92	0.44 to 1.93	0.831	1.64	0.76 to 3.53	0.209	1.27	0.56 to 2.86	0.566
≥ 75	0.99	0.48 to 2.02	0.974	1.99	0.94 to 4.21	0.074	1.39	0.63 to 3.06	0.420
<b>Male sex</b>	1.33	1.12 to 1.57	0.001	1.25	1.08 to 1.45	0.002	1.04	0.88 to 1.24	0.620
<b>Hospital category (surgeries per year),* A (0 to 250) ref.</b>	(ref.)			(ref.)			(ref.)		
B (251 to 500)	0.87	0.61 to 1.24	0.431	0.96	0.72 to 1.29	0.806	0.81	0.59 to 1.12	0.207
C (501 to 750)	1.03	0.73 to 1.46	0.846	0.80	0.60 to 1.06	0.123	0.71	0.51 to 0.97	0.034
D (751 to 1,000)	0.96	0.67 to 1.38	0.810	0.85	0.63 to 1.15	0.303	0.81	0.58 to 1.14	0.228
E (> 1,001)	1.20	0.83 to 1.71	0.330	1.09	0.81 to 1.47	0.574	0.86	0.62 to 1.21	0.393
<b>LOS, days</b>	1.01	0.99 to 1.01	0.174	1.01	1.01 to 1.02	< 0.001	0.99	0.98 to 0.99	0.015

\*Endoprosthetic arthroplasties and osteosyntheses.

CI, confidence interval; LOS, length of in-hospital stay; OR, odds ratio.